

CLAIMS

1) A method for determining gas hydrate formation conditions in a well fluid, comprising the following stages :

- taking a fluid sample,
- 5 - placing this sample in a calorimetry cell,
- performing on this sample a reference thermogram in a temperature range between T1 and T2,
- performing on the same sample a second thermogram in the same range and under a pressure Ph of a hydrocarbon gas, T1 being a temperature low enough to obtain the
- 10 formation of hydrates in the sample at a gas pressure Ph, P2 being high enough to obtain hydrate dissociation,
- identifying a peak in the second thermogram corresponding to the hydrates dissociation zone and deducing therefrom a hydrates dissociation temperature,
- determining the hydrate formation conditions for the fluid considered.

15 2) A method as claimed in claim 1, wherein pressure Ph is determined as a function of the pressure of the well fluid close to the zones where the appearance of hydrates is critical.

 3) A method as claimed in any one of the previous claims, wherein the efficiency of an anti-hydrate additive is tested by adding it to said fluid sample in determined

20 proportions.

4) A method as claimed in any one of the previous claims, wherein T1 and T2 are -20°C and 35°C respectively.

5) A method as claimed in any one of the previous claims, wherein the thermograms are obtained with a temperature gradient ranging between 0.5 and
5 $5^{\circ}\text{C}/\text{minute}$, preferably at $2^{\circ}\text{C}/\text{minute}$.

6) A method as claimed in any one of the previous claims, wherein CH_4 is used for said gas.

7) A system for implementing the method as claimed in any one of the previous claims, characterized in that it comprises in combination : a calorimetric measuring
10 device, means for placing the measuring cell of said device under pressure by means of a hydrocarbon gas, thermogram recording means.

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